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Public school health services delivery: the option of paid aides

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Public School Health Services Delivery: The Option of Paid Aides

by

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CASE SUMMARY

In a time of rising taxes and taxpayer discontent, public school districts must minimize spending. Yet, they must provide health services to students. This paper compares the costs and benefits of using paid health aides and volunteers to help provide these services under the supervision of a school district registered nurse. The preferred option in terms of least cost is determined, as well as the option of choice when benefits are also weighed, in a time of normal budget restraint and in a time of severe budget restraint.

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SECTION 1

INTRODUCTION

Rising property taxes, of which public school taxes are a significant component, have been an issue locally. Area taxpayers have been very vocal in favor of the school district minimizing its spending. In an effort at cost containment, the district has looked at its health services delivery system.

Neither federal law, state law, state regulations nor common practice instruct school districts in Wisconsin how to administrate their health services. Within broad statutory mandates, there is wide leeway for the specific structure of school health services. This study compares the costs and benefits of several personnel alternatives for assistants to the school district registered nurse.

There is a need to show taxpayers and their elected representatives, the School Board members, that school health services offer good value for the money spent. Data based justification of nursing and health services is increasingly required by fiscal stringency in community health care agencies (Oda, 1986, p.22).

Yet, cost/benefit studies are only beginning to occur in public school health services despite numerous cost/benefit studies in other health care settings. Roos, Paul, Nelson, and Crooker (1984) cite three reasons for this lack:

1) Very few schools would allow such a study;
2) In many schools, the nurse's records are insufficient to the task because they are kept primarily for administrative reasons and do not contain the data required; and

3) It is extremely difficult to find comparable activities outside the school to which dollar values can be assigned so that a price may be put on the school nurse's activities. (p. 162)

This study had to deal with all three of these factors. It set up data collection and methodology to examine the cost/benefit question of paid health aides and volunteers.

SECTION 2

DESCRIPTION OF THE ORGANIZATION'S CURRENT SITUATION

Community Demographics

The focus for this study is a school district is located about 30 miles outside of a large metropolitan area. The district encompasses approximately 91 square miles. It is composed of territory in ten municipalities including three villages, two towns, parts of four other towns, and part of a city. There are still farms in the area and agricultural zoning but there are many new subdivisions.

The total population, which exceeds 21,000, is quite diverse. Many of the newer residents commute to their place of employment in the nearby urban area. Although the school district area may be classified as a residential, bedroom community, a number of farms and small businesses do exist in the immediate area. They provide a variety of services to the residents.

Employment and educational background of the district residents is judged to cover a representative range. Over 41% of district residents are employed in white collar positions compared with 42% of males nationally and 63% of females nationally. Of district residents over the age of 25, 58% have completed four years of high school, or more, in comparison with the national average of 65%. Median age for the district is 25.8 years compared to the state average of 27.2 per 1970 census (School Board Profile, 1984).

General Profile Of the School District

The school district was created on August 7, 1971, following an election calling for the merger of five elementary districts with the union high school district. From 1977 to 1984, the school district population increased 26%. In 1984 it was the fastest growing district in the state and one of only 34 districts with enrollments of over 4,000. This placed it in the top 7.9% of school districts in Wisconsin. Since 1983, district enrollment stayed between 4500 and 4900 and is projected to remain at a similar level. The following table shows district growth since 1983 and projected growth (School District, 1989, p. 27) to 1994:

Table 2.1 School District Enrollment 1983-1994

1983-1984	4553	
1984-1985	4632	
1985-1986	4659	
1986-1987	4666	
1987-1988	4714	
1988-1989	4758	
1989-1990	4685	Projected
1990-1991	4706	"
1991-1992	4772	"
1992-1993	4810	"
1993-1994	4792	"

In fiscal year 1988-1989, the year of this study, student enrollment was 4,758. There were eight attendance centers: six elementary schools (two of which are very small and will be excluded from the study), one junior high school (JHS), and one high school (HS).

The maximum estimated capacity of the school buildings totals 5,050. Each building is now close to, or over, optimal capacity. When the school district enrollment reaches 5,000, there is general agreement that there

would be no choice but to construct a new junior high school and convert the present junior high school to an elementary facility. This would cause a major increase in the property tax levy. Thus, the prospect of a relatively slight additional enrollment increase hangs like a dark cloud over the district and has to be considered in financial planning.

District Mission and Objectives

The school district's philosophy or mission states the fundamental, unique purpose of the organization. This mission and the aims, goals, and general objectives, relate to community service, educational achievement, occupational competency, student support services, and control of expenditures. (See Appendix A)

Human Resources

Staff size

The district administration consists of 29 persons. They are all certified by the Department of Public Instruction of Wisconsin in administration which means they must obtain continuing education credits. They have a separate salary/benefits package and would have a one year or two year contract.

The district certified staff consists of 317 persons certified by the Department of Public Instruction of Wisconsin in teaching or student support services. They have their own salary/benefits package negotiated by the teacher's union and a yearly contract with a yearly wage.

The district classified staff consists of 130 persons who are not required to have a certification from the state. They have a job

description and a salary/benefits package negotiated by their union (separate from the teachers' union). They are paid by the hour.

The school district thus has a total of 476 employees. It is the largest single employer in the area.

Authority Structure

The authority structure in the school district is a scalar chain-of-command from the top down. Authority is centralized and, even within spheres of professional judgment, there is a high degree of accountability from the bottom up. This is partly due to the high degree of centralized authority in the state Department of Public Instruction which generates many regulations binding on local districts. The school board has often verbalized its desire for greater local control.

Within each school, line functions bring authority down from the school board and superintendent to each principal and vice-principal and then to the teachers and aides. Evaluation is done by the person in the position above.

Across the district there are staff functions that require special technical expertise or detailed attention to a job. Examples are curriculum specialists, pupil services to gifted and talented or to underachieving students or students with special needs, food service, and facilities maintenance are examples. These positions tend to have concurring authority relationships with line people.

In the school district, line managers tend to be oriented toward advancement within the district. Loyalty to the organization is important to them. Staff consultants are more oriented toward advancement within their profession and their loyalty lies with their profession.

Line/staff conflicts do occur and cause friction but, generally, they tend to be settled constructively. When the decision incorporates the thinking of both line and staff persons, it has benefited from the conflict.

Salary and Benefits

The following table (School District, 1989, p. 12) shows that 77.9% of school district expenditures are for salary and benefits:

Table 2.2 School District Expenditures

Salary	58.8% (of total)
Benefits	19.1%
Purchased services	13.3%
Non-capital	4.8%
Capital items	1.3%
Short term interest	1.7%
District insurance	0.9%
Dues	0.1%

Benefits add 38% to base hourly salary costs for all employees. Benefits include health insurance, life insurance, and pension. Only employees who work more than 30 hours per week earn benefits and the district tries to use part-time/no-benefits positions where possible.

Comparison with Other Area Districts

Of the 31 geographically closest districts, the district ranks second highest in the ratio of enrolled students to the number of professional staff. In average years of experience of the professional staff, the district ranks fourth lowest in this sample group. In the number of degrees beyond B.A. for the professional staff, the district ranks eleventh. These three factors combine to give the district a

ranking of number 30, out of 31 area districts, in total cost per pupil, i.e., second lowest.

School District Finances

Sources of Funds

The school portion of local taxes is used locally. State school aid revenue is allocated among local school districts by a formula applied on a statewide basis. This equalizes funding among districts so that children in richer districts (either personal wealth or industrial base wealth) do not receive a better funded education than children in less wealthy districts. Table 2.3 shows the district's sources of funds (School District, 1989, p. 11):

Table 2.3 School District Sources of Funds

Tax levy	41.3% (of total)
State aid	51.4%
Interest of funds	1.0%
Federal aid	0.8%
Student fees	0.5%
Fund balance	4.4%
Misc.	0.9%

Comparison with Other Area School Districts (School District, 1989, p. 23)

Of the 31 geographically closest school districts, the district ranks twenty-first highest in property tax rate. In property value per pupil, the district ranks lowest in property value divided by the enrollment. The district ranks second highest in state aid per pupil. Only the nearby metropolitan area is higher. In cost per pupil, the district ranks second lowest. This indicates that the source of "high

taxes" in the district is not excess district spending but low property tax revenues.

Budget Process

Each year the administration draws up a budget with a percentage increase over the previous year which has been dictated by school board or which the administration feels will be accepted. Top administration divides up the total amount of monies for which the different schools and projects and middle level administrators compete.

Adoption of the budget is accomplished by majority vote of the school board after consideration of citizen input at the annual meeting, i.e., the official budget hearing. At this meeting, citizens can express their opinions but cannot legally vote on the proposed budget. Citizens do vote on the levy but only in an advisory capacity. The citizens also determine the school board salaries at the annual meeting. The annual audit report of the district's books is presented to the public. A copy of the proposed budget is made available to everyone attending the meeting. After the meeting, but prior to the third Monday in October, the board must adopt a final budget. This process is mandated in Wisconsin Act 101 s.120.13(33).

There are two noteworthy facets of the process. One is that, at the time of budget adoption, the district does not know the exact amount of its state aid. The state government is not able to inform districts of the amount of aid by the time the districts must adopt their budgets. The district estimates its state aid and draws up a flexible budget.

The other noteworthy facet is that, between the beginning of the school year on July 1st and the board's adoption of the final budget, the

board temporarily borrows its own funds, as needed, for the purpose of meeting the immediate expenses of operating the school district. (See Appendix B)

Fund Structure

Main funds. School district monies are divided into eight different main funds shown on the following table:

Table 2.4 School District Fund Structure

Fund 10	General Fund
Fund 24	Federal Handicapped I
Fund 30	Debt Service
Fund 40	Building Fund
Fund 50	Food Service
Fund 60	Student Accounts
Fund 70	Trust Fund
Fund 80	Community Service

Only two funds affect the tax levy: Fund 10, the General Fund; and Fund 30, the Debt Service fund. These two funds are the district's "operating funds" which combined produce a budget of approximately $22,000,000 (See Appendix B). The other funds included in Table 2.4 are for limited and specific purposes, for example, to keep federal or state reimbursement money separate. Fund 10 is the most active.

Fund 10 structure. Looking at the list of accounts in Fund 10 in the following table further explains how "general" costs are tracked and allocated:

Table 2.5 Fund 10 Accounts

105	B.B. Elementary School
110	C. Elementary School
115	E. Elementary School
125	P.V. Elementary School
130	W. Elementary School
135	S. Elementary School
305	Junior High School
405	High School
505	Vocational Education
805	District Wide
810	Curriculum
815	Chapter I
816	Chapter IA
817	Gifted and Talented
820	Chapter II
825	Title II
830	Drug Grant
970	Flow Through
980	Early Childhood

Accounts 105 through 405 allocate costs to individual buildings. Accounts 505 through 980 allocate costs on a district wide basis.

Pupil services/health services. Within Account 805 in Fund 10 are found all pupil services accounts including health services. The school district nurse's supervisor is the pupil services director. Pupil services accounts are not differentiated as to type of service. The director can allocate that money as seen fit. There is no specific health services account. Even within a given year, if health services has extra needs, there will be extra money available from the combined funds. On the other hand, health services probably loses some money to the combined funds. Paid health aide salaries total $78,594 or 0.39% of the district's total budget of $22,000,000.

SECTION 3

IDENTIFICATION OF THE PROBLEM

With the need to control costs to minimize taxes, the problem is whether the district's health services delivery system should be changed. Under the present system, each school has one full-time paid health aide and all aides are supervised by the district's one registered nurse. The organization needs to determine if the benefits of paid health aides justify the cost and whether paid health aides assist in supplying the strategic internal factor of student support services for the district. Alternatives to the present system, and their cost need to be investigated.

SECTION 4

ANALYSIS OF THE PROBLEM

Difficulty in Quantification

In the area of studying costs and benefits of paid health aides and volunteers, quantification is difficult. Research revealed no study which gave precedents. The nature of the difficulty is similar to that described by Roos et al. (1984) with regard to the school nurse:

> No benefit/cost analysis nor analysis of cost per unit service can indicate the quality of the school nurse's work, particularly the many ways in which the nurse's education and experience can help students and staff beyond direct services such as preventive health, case finding, and the coordination of health and educational services. Nor can such methods give credit for the responsibility assumed by a school nurse..... (p. 162).

Similarly Oda (1979), nursing director, Robert Wood Johnson Foundation National School Health Program, comments: "...it is difficult to measure the number of diseases and accidents prevented as a result of nursing intervention as well as the positive effects that result from counseling" (p.437).

Comparison with Other Area School Districts

Comparison with other area school districts in delivery of health services is a key external factor. For the "area" the researcher chose the county. Table 4.1, which follows, describes its health services:

Table 4.1 Delivery of Health Services in Other Area School Districts

SCHOOL DISTRICT	88-89 ENROLL-MENT	R.N.	PAID AIDES	VOLUN-TEERS
A	4272	2	1	X
B	6100	EACH SCHOOL		X
C	2600	HEALTH DEPT	EACH SCHOOL FULL-TIME	
D	3400	1	EACH SCHOOL 1/2 TIME	X
E	3300	HEALTH DEPT		X
THE DISTRICT	4758	1	EACH SCHOOL FULL-TIME	
F	3300	1	2	X
G	4300	2		X
H	4100	1	3	X
I	1200	HEALTH DEPT		
J	1400	HEALTH DEPT		

The district is second largest in the county, and when enrollment is compared to health services personnel, the district seems proportional. Indeed, if the paid aides were reduced the district would need another R.N. to again be in proportion.

District Mission and Objectives

General Objectives 2 and 3, part of the School District Philosophy of Education (1986) (or mission), aims, goals, and objectives of the school district support the idea of adequate student support services (see Appendix A):

2. To employ well qualified instructional and related personnel in adequate numbers.
3. To provide the facilities, equipment, organization and administrative support best designed to enhance this educational process.

This appears to be a key internal strategic factor. Pearce and Robinson (1988) define strategic internal factors as "a firm's basic capabilities, limitations, and characteristics" (p.207). Not only is the district mandated to provide student support services but it is singled out, here, in the mission statement of the district.

Legal Considerations

School health services are mandatory under Wisconsin law but only in a general, not specific, way. Summarized below are the statutes, regulations, and guidelines affecting the administration of school health services in Wisconsin.

Standard for Emergency Nursing Services

According to the Ad Hoc School Nursing Study Committee (1986), the Standard for Emergency Nursing Services, Section 121.02 of the Wisconsin Statutes, states that: "Each school board shall provide for emergency nursing services" (emphasis supplied) (p. 37). The Wisconsin Department

of Public Instruction (1983) has clarified the statute to mean:

> Emergency nursing services shall be provided under the direction of a nurse(s) registered in Wisconsin. Emergency nursing service means nursing assessment and may include intervening action by the registered nurse, or designated others under her direction, of conditions which require prompt or immediate action. (1)(a-j)

The Standard has not been interpreted in detail--what exactly must a district do to pass an audit by the Department of Public Instruction. However, an informal opinion by Taff (1988), State School Nursing Consultant, suggested the criteria of at least two designated, qualified personnel to provide emergency nursing services in each attendance center. "Qualified" is suggested to mean certified in first aid and CPR. This criteria is applied in parts of the state where full-time health aides are scarce. Since the district's full-time paid health aides are certified in first aid and CPR, they would meet this criteria. If the district changed to a volunteer system, even for just part of the day, it would need to have school personnel trained in first aid and CPR. This cost would have to be included in the cost of administration for a volunteer program.

Nurse Practice Act

According to the Ad Hoc School Nursing Study Committee (1986) Chapter 441.11 of the Wisconsin Statutes, the Nurse Practice Act, states:

> The practice of professional nursing within the terms of this chapter means the performance for compensation of any act...and the execution of general nursing procedures and techniques...the

> practice of professional nursing includes...the supervision and direction of licensed practical nurses and less skilled assistants. (p. 39)

The Nurse Practice Act allows the practice of professional nursing and the delegation of authority. It places the use of paid health aides on firm ground although nursing judgment must insure appropriate delegation and adequate supervision.

Federal Laws

Due to medical advances during the past four decades, many children who would have died from their chronic illness now survive to adulthood. These children have complex health needs that require physical care and monitoring. Federal law requires school districts to service such students in the mainstream of the student population. Public Law 94-142 requires a free, appropriate education for all handicapped children. Section 504 of the Rehabilitation Act of 1973 prohibits discrimination on the basis of mental or physical handicap.

State Industry Analysis

The Report of the Ad Hoc School Nursing Study Committee to the Department of Public Instruction on School Nursing (1986) is the only statewide industry analysis. It states "there is great disparity among the nursing and health services now provided in Wisconsin's elementary and secondary schools" (p.5). This report recommends that "the Department of Public Instruction develop information on the qualifications for school nurses and for a variety of school health service delivery models and disseminate them..." (p.5). The report highlights the lack of specific organizational requirements or even recommendations. It does place the

school nurse as a member of the professional pupil services team in the school organizational structure, i.e., a staff function.

National Industry Standards

The National Association of School Nurses, in a 1986 resolution, recommends a maximum ratio of one school nurse to 750 students. Note that meeting this recommendation would require six school nurses for the district whereas it now has one.

The American Nurses' Association (1983) sets a standard for the school nurse "to establish and maintain a comprehensive school health program" (p.4). This standard also charges the school nurse to determine the "training of paraprofessionals, extent of orientation, and amount and type of supervision that will be needed to comply with state nurse practice act and other legal considerations" (p.5).

The role of the school nurse is partially determined by the difficulty meeting the recommended ratio of school nurses to students and by the legal ability to delegate. As described in the following model by Gottlieb and Kotch (1984), the nurse's role changes from care giver to care supervisor. This change opens the door for the expanded role of paid school health aides.

> Under the health organizer system, the role of the school nurse was redefined--shifting from the provider of primary care to information, referral, and follow-up specialist and consultant to teachers, parents, and other health providers. This latter change would enable the nurses to play a more important role in the school's health education program, which was becoming even more limited with the fiscal cuts. (p.28)

Medications

State law. Section 118.29 of the Wisconsin Statutes covers administration of drugs to pupils:

> ...any school employee or volunteer...
>
> 1. May administer any drug which may lawfully be sold over the counter without a prescription to a pupil in compliance with the written instructions of the pupil's parent or guardian if the pupil's parent or guardian consents in writing.
>
> 2. May administer a prescription drug to a pupil in compliance with the written instructions of a practitioner if the pupil's parent or guardian consents in writing...
>
> 5. EXEMPTION No employee except a health care professional may be required to administer a drug or prescription drug to a pupil under this section by any means other than ingestion.

School District Policy. The school district medication policy for prescription drugs meets the criteria of the state law by requiring written orders from a doctor and parent. In fact, it is even more restrictive than state law for nonprescription drugs because it also requires written orders from a doctor in addition to a parent. In both cases, the district requires the drugs to be presented in a pharmacy labeled container.

Thus, people in the district can appreciate that the administration of medications in the school setting requires the steps of verifying the correct container and information, verifying the medical order, verifying the parent request, giving the medication with supervision, and properly recording it in the medication log. If there is a discrepancy in any of

the orders or container information or if any of the instructions are missing (a frequent occurrence), telephone calls must be made.

Red Cross Volunteer Policies

When the American Red Cross is used to certify aides and volunteers in first aid and CPR, a district is relieved of the responsibility for setting its own standards. But the Red Cross volunteer policies are very conservative and restrictive. Volunteers, working under Red Cross certification, are not allowed to give medications in the school. Paid health aides are allowed to do this because of the agency relationship with their employer. Volunteers, working under Red Cross certification, are not allowed to give any physical care to students with special physical needs (other than first aid). Paid health aides are allowed to do this because of the agency relationship.

Human Resources

Line and Staff Structure

The paid health aide position in the district is supervised by both line and staff authority. Line authority comes down from school board to the superintendent to the school principal to the health aide. Staff authority flows from the school board to the superintendent to the pupil services director to the district school nurse to the health aide. In most instances the school nurse and principal exercise concurring authority. Since the health aides do office work during their spare time, the principal gains office help.

Part-Time Status

Employees who work less than 30 hours per week do not earn benefits. Benefits add 38% to salary costs. Reducing the health aides to part-time would save both hourly wages and the costs of benefits.

Volunteer Situation

Recruitment of volunteers could be difficult. Due to a higher percentage of mothers working today, volunteers are scarce and needed for other jobs such as Parent Teacher Association (PTA) projects. Volunteers usually would work only a half day in a week. This is the common practice in the surrounding school districts which have volunteer systems. Thus, for each district school, ten volunteers would be needed per week for all volunteer coverage. Other factors make health room volunteers hard to recruit, e.g., legal liability and the perceived threat of communicable diseases. In other districts absences are common. It is generally assumed, even by the school board and administration, that it would be impossible to recruit volunteers for the junior high and high school health rooms. When the school board tried to cut health aides in 1982, 1986, and 1989 it stated that it expected to cut elementary health aides and not junior high or high school aides. Older students are harder to deal with, and by the time the volunteers' own children are in the junior high and high school, the volunteer often seeks a salaried job. Volunteers tend to work in their own child's school. For this study, it is assumed that full-time paid health aides would be kept at the secondary level (junior high and high school). For reduction in paid health aide costs, elementary positions will be examined.

Fixed Costs

Fixed costs of delivering health services and maintaining the health rooms would be the same under a volunteer or part volunteer system. Services are mandated. Attention to student illnesses and injuries and medication administration would still be required under the supervision of the registered nurse whether they are done by paid health aides, other staff, or volunteers. Thus, fixed costs would include the R.N.'s salary, building space including a bathroom, utilities, furniture, typewriter and other office equipment, and liability insurance premiums. Liability insurance for schools does not recognize the use of paid health room aides perhaps because of the aforementioned general lack of data.

Variable Costs

Health Aide Salary and Benefits

The best way to significantly cut costs is to reduce the health aides' hours below 30 per week, thereby avoiding the cost of benefits at the elementary level. Volunteers would be needed to fill in. Office clerks could fill in when volunteers were absent or not allowed to perform tasks.

Additional Salary for Office Clerks

Office work which the full-time paid health aides do now would have to be done by the office clerk (or another clerk at the same salary). Office clerks would have to give medications when volunteers were there. When volunteers were absent, office clerks would have to do health room tasks, as these tasks are not optional.

Administration of Volunteer Program

The costs of setting up and administering the volunteer program will have to be considered. Since these functions would be performed by the R.N., costs are expressed in terms of the R.N.'s salary.

Liability

There have been lawsuits in the district although not from health room situations. The exact risk of a lawsuit in the health room is not measurable. As mentioned, insurance rates do not allow for health room paid aides and other districts are not anxious to share such information. So, there is an unknown and unmeasured factor of health aide experience. The researcher will assume a small amount and include it, among other factors, in qualitative costs. This factor is beyond the scope of this analysis.

Qualitative Benefits

Effectiveness of Supervision

Although measurement is difficult, it can be asserted that supervision would be closer and more effective with fewer total persons in the health room in a week. The comments below may help show the importance of close supervision of health room aides or volunteers in achieving liability reduction and quality health care.

The American Academy of Pediatrics (1987) notes:

> Some school districts have hired health aides .....to meet the school health needs of students and staff. These paraprofessionals are not equipped to recognize, assess, manage, or make appropriate referrals for the myriad health problems now being handled in

> schools. If paraprofessionals are used to perform specialized caretaking procedures, the school physician or school nurse should determine competence, conduct in-service training, and then provide regular supervision and documentation of the paraprofessionals competence.
>
> The AAP further recommends the use of school nurses, not paraprofessionals, to deliver day-to-day nursing services and health counseling to children in schools. When paraprofessionals are part of the school health team, their performance of nursing services should be directly supervised by a professionally prepared and licensed school nurse. (p.647)

In New Hampshire, even supervision by telephone was questioned in a report by Gillen (1989):

> .....the school health laws were brought to my attention by the Department of Education. R.S.A. 200.31 Additional Health Aides clearly required direct supervision of the health aides by a registered nurse. Contact by telephone did not constitute direct supervision according to the New Hampshire nursing regulations. (p. 10)

Confidentiality

As Schwab (1988) notes: "Liability issues related to confidentiality are numerous. Since laws do not specify how to handle most conflicts related to health confidentiality in schools, the nurse frequently must make individual judgments based on professional knowledge and ethics" (p. 21).

This problem of confidentiality includes the health aide and volunteers. It is complicated by the employment of aides and volunteers from the local community who may be friends or neighbors or acquaintances of persons using health room services. Although measurement is difficult, it can be asserted that confidentiality would tend to be improved with fewer persons in the health room per week.

Efficiency

As hours per week and experience in the health room increase, the person working there should become more efficient both in medical judgment and in quantity of work done. This would allow him or her to perform more functions in the health room and also to do more office work. Hours per week and experience would increase with fewer total persons working in each health room.

Job Satisfaction

With fewer total people in the health room per week, each person would gain more ownership of the task as well as more skill comfort in the job. This would help offset any inherent reluctance to deal with, or be responsible for, sick or injured children. Even the office clerks are reluctant to cover the health room or give the physical care which will be increasingly needed in the future as students with physical needs are mainstreamed.

Resource Person Role

The full-time paid health aide has taken on the function of an identifiable resource person for the students to approach. He or she is capable of detecting student problems with health, attendance, chemical abuse and social problems which are then referred on to the appropriate

person. With a greater number of people working in the health room each week, this benefit would be reduced.

Para-Medical Assistant Role

Currently, because of their availability and expertise, the health aides assist the district nurse with many screenings and programs. This extends the scope of the district nurse. With greater numbers of total people in the health room each week this function would be reduced.

Health Aide Quality

Applications for health aide positions could be expected to decrease as total salary and benefits decrease. Turnover could be expected to increase. The excellent health insurance of the district attracts people to the position. It is unavailable, however, to those working less than 30 hours per week.

SECTION 5

DESCRIPTION OF POTENTIAL SOLUTIONS

Measurement of Variable Costs--Methodology

Reasonable Alternatives

Large savings in benefits costs are derived by dropping an employee below 30 hours per week. Thus, the study will explore variable costs under different alternatives of part-time elementary health aides with various hours of the day. The study will also explore costs of full-time health aides and all elementary volunteers. The alternatives will be:

1. Full-time paid health aides
2. Part-time paid elementary health aides--AM only
3. Part-time paid elementary health aides--AM and midday
4. Part-time paid elementary health aides--midday
5. Part-time paid elementary health aides--midday and PM
6. Part-time paid elementary health aides--PM only
7. Elementary volunteers

Five alternatives for part-time paid health aides will be used because of the structure of the school day. Morning recess, noon recess, and afternoon recess bring playground injury cases to the health rooms. Many medications are given at noontime. Various combinations of these periods of the day will be studied to determine which yield the greatest coverage for the least cost.

Health Room Data Collection

As Snyder (1988) notes: "A model for determining the costs and benefits of school nursing programs is needed. But the first step is to

develop, organize, and present an accurate picture of school nursing services through data collection" (p. 28).

For this study a recording system was set up for health room visits and main health room activities by hour of the day for a one-third year period in January, February, and March 1989 from which yearly figures could be generated. Two very small elementary attendance centers were omitted because they have clerk/health aides.

Additional Salary for Office Clerks

Lost health aide non-health room work. The health aides do non-health room work for the office and teachers. The amount per day was recorded and subtracted from health aide cost. It was added in clerk salary form, to the cost of part-time health aides and all volunteers.

Medications. These cannot be given by a volunteer. They must be given by clerks in the absence of a paid aide. Thus, the time required per medication was needed to calculate cost. A time study was done of the administration of 50 typical medications. The average time involved was one and one-half minutes or 0.025 hour. The researcher also counted medication dosages by time of day and found that 95% are given in the midday period, 5% are given in the A.M., and 5% are given in the P.M.(see page 32 for time periods).

Volunteer Absences. To estimate a reasonable volunteer absence factor, the researcher obtained data for one half year from a neighboring district with an elementary volunteer program. For the period of the first semester 1988-1989, the neighboring district experienced a 47% rate of absence and noncoverage in elementary health rooms. This district felt that this period of time was typical, i.e., there were no unusual factors

affecting this rate. For this study the researcher arbitrarily used a 20% absence factor, i.e., set low so that costs would not be overestimated. For full-time paid health aides the absence rate is zero because of the sufficient list of paid substitutes. Even though this high absence rate makes the volunteer alternative impractical, its apparent low cost attracts the school board.

Administration of Volunteer Program

The main variable cost would be the district R.N. hours to teach the first aid classes, advise and consult with the volunteer chairman, and give direct supervision to the volunteers in excess of the time usually spent supervising the health aides. An estimate of this last factor, in hours per week, was obtained from the neighboring district. Also included in the costs is clerk salary for the required first aid and CPR certification.

Measurement of Qualitative Factors - Methodology

All the Qualitative Benefits (pp. 23-26) except the last (health aide quality) can be related to the number of total people working in the health rooms per week. While these factors cannot be quantified individually, the multiple benefits of reducing the total number of people can be seen. Thus, the researcher will use this as the benefit indicator to weigh against costs. Benefits have an inverse relationship to the total number of people working in the elementary health rooms per week. These people would include full or part-time health aides, the office clerk, volunteers, and the volunteer chairman. As mentioned, it is common practice for volunteers to work only a half day or less in a week.

Attempts to make their days longer only increase absences, according to other districts.

Health Room Data Results

Health Room Totals

In Table 5.1 below, the results of the health room data collection are projected for the full 1988-1989 school year. Health room visits, medications, accidents requiring reports, and exclusions (sending students home due to illness or injury), while not all inclusive of health aide activity, were considered the main functions in terms of time spent.

Table 5.1 Projected 1988-1989 Health Room Totals

	Total School Enrollment	88-89 Health Rm Visits	88-89 Medi-cations	88-89 Accident Reports	88-89 Exclu-sions
Elem	2300	23538	5787	117	1538
JHS	724	4479	1608	65	725
HS	1518	5109	390	139	1545
Total	4542	33126	7785	321	3808

Health Room Visits by Time of Day

Table 5.2 shows the results of data collection for health room visits by time of day. It is projected on a yearly basis. For the elementary schools, 8:30 to 10:30 was the AM period, 10:30 (which included recess) to 1:30 (which includes noon recess) was the midday period, and 1:30 to 3:30 was the PM period. For the junior high, 7:30 to 10:30 was the AM period, 10:30 to 12:30 (which includes the lunch and recess periods) was the midday period, and 12:30 to 2:30 was the PM period. For the high school, 7:30 to 10:30 was the AM period, 10:30 to 12:30 (which includes the lunch periods) was the midday period, and 12:30 to 3:30 was the PM period. High school dismissal is at 2:45 but health aide salary costs are the same as for the junior high. Health room visits before and after school do occur as we see on Table 5.2:

Table 5.2 Health Room Visits by Hour of the Day

	8:30	9:30	10:30	11:30	12:30	1:30	2:30	3:30	Total
ELEM	258	2208	2655	2355	5508	5685	2697	2172	23538
JHS	309	609	717	852	780	867	315	30	4479
HS	438	882	936	921	681	753	447	51	5109
TOTAL	1005	3699	4308	4128	6969	7305	3459	2253	33126

Cost of Full-Time Paid Health Aides

In Table 5.3 below, the costs of full-time paid health aides are projected. To obtain total salary costs, non-health room work is subtracted. For a detailed explanation of figures see Appendix C.

Table 5.3 Costs of Full-time Paid Health Aides

Alternative 1

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Health Aide Salary	51087	13753	13753	78594
I. Non-Health Room Work Hours	266	143	57	466
J. Non-Health Room Salary (I*10.92 Aide Salary inc. benefits)	2905	1562	622	5089
K. Adjusted Salary Cost in Dollars (H-J)	48,182	12,191	13,131	73,504
L. Variable Cost Per Unit Service in Dollars (K/G)	1.56	1.77	1.83	1.63

Cost of Part-Time Elementary Health Aides

In Table 5.4 below, the initial information (A-G) is listed the same way as in Table 5.3. For the junior high school and the high school, health aide salary is also the same as in Table 5.3. To estimate elementary part-time aides' salary costs, the researcher added the cost of lost health aide non-health room work, the cost of clerks giving medications, the cost of administering a volunteer program, and the cost of clerks doing the work of absent volunteers. For a detailed explanation of figures see Appendix D.

Table 5.4 Costs of Elementary Part-Time Paid Health Aides--AM

Alternative 2

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	11390	13753	13753	38896
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Cost of Clerks Giving Medications	1514			
L. Cost of Administration of the Volunteer Program	4020			
M. Uncovered Units of Service	3683			
N. Cost of Uncovered Units of Service	5746			
O. Adjusted Salary Costs (Elem: H+J+K+L+N) in Dollars (JHS,HS: H-J)	25601	12191	13131	50923
P. Cost per Unit of Service in Dollars	0.83	1.77	1.83	1.13

Table 5.5 Costs of Elementary Part-Time Paid Health Aides--AM/Midday

Alternative 3

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	28476	13753	13753	55982
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Cost of Clerks Giving Medications	80			
L. Cost of Administration of the Volunteer Program	4020			
M. Uncovered Units of Service	974			
N. Cost of Uncovered Units of Service	1519			
O. Adjusted Salary Costs (Elem: H+J+K+L+N) in Dollars (JHS,HS: H-J)	37026	12191	13131	62348
P. Cost per Unit of Service in Dollars	1.19	1.77	1.83	1.38

Table 5.6 Costs of Elementary Part-Time Paid Health Aides--Midday Alternative 4

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	17086	13753	13753	44592
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Cost of Clerks Giving Medications	159			
L. Cost of Administration of the Volunteer Program	4020			
M. Uncovered Units of Service	1998			
N. Cost of Uncovered Units of Service	3117			
O. Adjusted Salary Costs in Dollars (Elem: H+J+K+L+N) (JHS,HS: H-J)	27313	12191	13131	52635
P. Cost per Unit of Service in Dollars	0.88	1.77	1.83	1.17

Table 5.7 Costs of Elementary Part-Time Paid Health Aides--Midday/PM

Alternative 5

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	28476	13753	13753	55982
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Cost of Clerks Giving Medications	80			
L. Cost of Administration of the Volunteer Program	4020			
M. Uncovered Units of Service	1024			
N. Cost of Uncovered Units of Service	1598			
O. Adjusted Salary Costs (Elem: H+J+K+L+N) in Dollars (JHS,HS: H-J)	37105	12191	13131	62427
P. Cost per Unit of Service in Dollars	1.20	1.77	1.83	1.39

Table 5.8 Costs of Elementary Part-Time Paid Health Aides--PM

Alternative 6

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	11390	13753	13753	38896
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Cost of Clerks Giving Medications	1514			
L. Cost of Administration of the Volunteer Program	4020			
M. Uncovered Units of Service	3734			
N. Cost of Uncovered Units of Service	5824			
O. Adjusted Salary Costs (Elem: H+J+K+L+N) in Dollars (JHS,HS: H-J)	25691	12191	13131	51013
P. Cost per Unit of Service in Dollars	0.83	1.77	1.83	1.13

Cost of Elementary Volunteers

In Table 5.9 below, initial information (A-G) is listed as before (Tables 5.3--5.8). To obtain the cost of the elementary volunteer program, the researcher added the cost of lost health aide non-health room work, the cost of clerks administering medications, the cost of administering the volunteer program, and the cost of clerks covering for volunteer absences. For a detailed explanation of figures see Appendix E.

Table 5.9 Costs of Elementary Volunteers

Alternative 7

Item	Elem	JHS	HS	Total
A. Student Enrollment	2300	724	1518	4542
B. Health Room Visits	23538	4479	5109	33126
C. Average Visits Per Student (B/A)	10.2	6.2	3.4	7.3
D. Medication Doses	5787	1608	390	7785
E. Accident Reports	117	65	139	321
F. Exclusions	1538	725	1545	3808
G. Total Units of Service (B+D+E+F)	30980	6877	7183	45040
H. Part-Time Health Aide Salary Cost	-	13753	13753	38896
I. Lost Health Aide Non-Health Room Work Hours	266	143	57	466
J. Non-health Room Work Salary	2931	1562	622	5135
K. Adjusted Salary Cost	2931	12191	13131	28253
L. Cost of Clerks Giving Medications	1594			
M. Cost of Administering the Volunteer Program	4020			
N. Uncovered Units of Service	6196			
O. Cost of Uncovered Units of Service	9665			
P. Total Costs in Dollars (Elem: K+L+M+O) (JHS, HS: K)	18210	12191	13131	43532
Q. Cost Per Unit of Service in Dollars	0.59	1.77	1.83	0.97

SECTION 6

THE RESOLUTION

Comparing Cost Per Unit of Service

In Table 6.1 below, the variable costs per unit of service for the seven alternatives are compared. Alternative 7--Elementary Volunteers--is least costly:

Table 6.1 Variable Costs Per Unit of Service of Alternatives

Alternatives	Elem	JHS	HS	Total
1. Full-Time Paid Health Aides	1.56	1.77	1.83	1.63
2. Elementary Part-Time Paid Health Aides--AM	0.83	1.77	1.83	1.13
3. Elementary Part-Time Paid Health Aides--AM/Midday	1.19	1.77	1.83	1.38
4. Elementary Part-Time Paid Health Aides--Midday	0.88	1.77	1.83	1.17
5. Elementary Part-Time Paid Health Aides--Midday/PM	1.20	1.77	1.83	1.39
6. Elementary Part-Time Paid Health Aides--PM	0.83	1.77	1.83	1.13
7. Elementary Volunteers	0.59	1.77	1.83	0.97

Comparing Total Variable Costs

In Table 6.2 below, total variable costs for the seven alternatives are compared. Alternative 7--Elementary Volunteers--is least costly:

Table 6.2 Total Variable Costs of Alternatives

Alternatives	Elem	JHS	HS	Total
1. Full-Time Paid Health Aides	48182	12191	13131	73504
2. Elementary Part-Time Paid Health Aides--AM	25601	12191	13131	50923
3. Elementary Part-Time Paid Health Aides--AM/Midday	37026	12191	13131	62348
4. Elementary Part-Time Paid Health Aides--Midday	27313	12191	13131	52635
5. Elementary Part-Time Paid Health Aides--Midday/PM	37105	12191	13131	62427
6. Elementary Part-Time Paid Health Aides--PM	25091	12191	13131	51013
7. Elementary Volunteers	18210	12191	13131	43532

Comparing Costs and Benefits

The total variable costs to the school district of the seven health room staffing alternatives are examined in relation to benefits. These are represented as total number of people working in the elementary health rooms per week. Results are shown in the following Table 6.3. For a complete explanation of total people working in the elementary health rooms see Appendix F.

Table 6.3 Costs and Benefits of Alternatives

Alternatives	Total Variable Costs to District Costs	Total Persons Working in Elementary Health Rooms Benefits
1. Full-Time Paid Health Aides	$73,504	1
2. Elementary Part-Time Paid Health Aides--AM	$50,923	13
3. Elementary Part-Time Paid Health Aides--AM/Midday	$62,348	8
4. Elementary Part-Time Paid Health Aides--Midday	$52,635	13
5. Elementary Part-Time Paid Health Aides--Midday/PM	$62,427	8
6. Elementary Part-Time Paid Health Aides--PM	$51,013	13
7. Elementary Volunteers	$43,532	12

Preferred Solution in a Time of Severe Budget Restraint

In June, 1988, the Wisconsin State Legislature came within one vote of imposing school district spending caps. All districts would have been affected differently, according to the proposed formula. The school district, focused on in this study, would have been forced to cut $800,000 out of its budget. This situation would create a time of severe budget restraint. In such an event, this study offers an estimate of the true variable costs of various staffing patterns for health services delivery.

In a time of severe budget restraint, there would be no choice but to choose Alternative 7--Elementary Volunteers. This is estimated to save $29,972 if adopted over the present system of Full-Time Paid Health Aides. Elementary Volunteers is the least costly alternative. In a time of severe budget restraint, least cost would be the driving criteria, irregardless of the benefits.

Preferred Solution in a Time of Normal Budget Restraint

Although Alternative 7--Elementary Volunteers--is the least costly, it is associated with high absences, competition with other volunteer projects, and parental objection. Indeed, the last time the idea of health room volunteers instead of health aides was raised by School Board, 60 parents attended the Finance Committee meeting and the 20 who spoke were all opposed to the switch to the volunteer system.

The second least costly group of alternatives, Alternatives 2, 4, and 6, Elementary Part-Time Health Aides--AM or Midday or PM only, are not acceptable. They would still cost $7,391-$9,103 more than the least

costly alternative and they actually raise the total number of persons working in the health room from 12 to 13 as seen on Table 6.3 p. 44.

The next most acceptable group of alternatives in terms of cost would be Alternatives 3 and 5--Elementary Part-Time Health Aides AM/Midday or Midday/PM. However, they cost $18,816 and $18,895, respectively, above the least costly alternative and lower total number of persons in the health rooms only to eight. For a cost of 50% more, the total number of people is lowered to one.

The definition of the cost/benefit approach, according to Horngren and Foster (1987) is: "the primary criterion for choosing among alternative...systems or methods is how well they help achieve management goals in relation to their costs" (p.6). Using the cost/benefit approach, the alternative of choice is Alternative 1--Full-Time Paid Health Aides--because the amount of benefits gained justify the additional cost.

The additional cost of Alternative 1 is $29,972 over the least costly alternative. This amount, by comparison, is the cost of one teacher in a district of 317 certified staff. The position of Health Aide does not have academic contact with students but health services are mandated. This additional cost impacts 2300 elementary students which is approximately half of the student population.

For this additional cost, the total number of persons working in the health room is reduced from 12 to one. This number is used as an inverse indicator for benefits. The lower the total number of persons working in the health room, the greater are the benefits.

One of the benefits of lowering the number of persons to one is more effective supervision. Now that the true variable cost is estimated, it

can also be estimated that the prevention of an one million-and-a half-dollar lawsuit, would pay for 50 years of Full-Time Health Aides.

The serious issue of confidentiality is mitigated by having one person under employment contract rather than on a volunteer basis. There are few sanctions placed on a volunteer which would prevent problem behavior in this area.

The benefit of efficiency refers to both medical judgment and total amount of work done. Increased total amount of work done furnishes the schools with a quasi-office person, even though he or she is not budgeted as such.

The benefit of greater job satisfaction should reduce turnover and attract quality people to the health aide position. Indeed, in the present situation of having full-time paid health aides in the school district, there is very low turnover. Because the paid health aides have been employed more than five years, they are at the top of the salary schedule. Three, out of six aides, have been in their jobs over ten years. One has been in the job for seventeen years.

Using a single person to deliver health services in the health room provides a resource person for the students and a para-medical assistant. Thus, the district nurse and other district resource staff have their roles extended.

For a reasonable cost, full-time paid health aides offer benefits related to student support services. These services are among the general objectives of the school district (see Appendix A). Thus, paid health aides are a strategic strength for the organization.

Pearce and Robinson (1988) state that: " A host of external and often largely uncontrollable factors influence a firm's choice of direction and action and, ultimately, its organizational structure and internal processes" (p.99). They also state: "Accurate forecasting of changing elements in the environment is an essential part of strategic management" (p. 174). Chief among such external, environmental factors for school districts is P.L. 94-142 which mandates a free, appropriate public education for all handicapped children. In the future, school districts will be delivering much more in the way of health services. Unless a district employs sufficient R.N.s at much greater cost, the use of full-time paid health aides under R. N. supervision is an attractive alternative with a favorable cost/benefit ratio.

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Appendix A

School District Philosophy of Education 1986

Philosophy

"Let each become all that he was created capable of being; expand if possible to his full growth...and show himself at length in his own shape and stature, be these what they may."

Thomas Carlyle

Recognizing our district's youth as its greatest asset, and their education as the community's greatest single responsibility, the Board of Education and the staff consistently strive to serve the best interests of the youth and the community. We believe that the education of our youth is best served by a school that is in part described by the following:

Aims

1. To provide an educational system in which human relationships are based on the concept of tolerance, justice and respect for all.
2. To inspire and assist each student to achieve his or her full potential commensurate with his or her goals, opportunities, abilities, and responsibilities in life, recognizing this responsibility is shared with each student's parents.
3. To inspire and assist each student to become a lifelong learner and self-reliant.

Goals

1. To provide opportunities for all students to learn skills in the basic curricular areas.
2. To provide opportunities for students to develop occupational competencies, talents, and interests beyond the scope of the basic curricular areas.
3. To provide opportunities for students to participate in a wide variety of activities designed to allow them to gain from group effort, competition, and individual experiences.

General Objectives

1. To provide a curriculum designed to recognize individual differences.
2. To employ well-qualified instructional and related personnel in adequate numbers.
3. To provide the facilities, equipment, organization, and administrative support best designed to enhance this educational process.
4. To control the use of public funds in such a way as to maximize their effective use in pursuit of our educational purpose.

Appendix B

Table B

SCHOOL DISTRICT BUDGET 1988-1989

Budget Requirements	
Fund 10	$21,179,853
Fund 30	$710,141
Total	$21,889,994
Receipts (Resources)	
Cash Balance	$793,030
State Aid	$11,377,348
Other Revenue	$606,025
Tax Levy	$9,415,715
Total	$22,192,118
Estimated balance 6/30/89	$302,124
Equalized Value	$602,607,289
Millrate	0.015625
Rate per Thousand	$15.63

Source: School District, 1989, p. 13.

Appendix C

Table C

EXPLANATION OF FULL-TIME PAID HEALTH AIDE COSTS

(Table 5.3 p. 32)

Item	
A.	School district data
B.	Projected yearly totals Table 5.1 p.30
C.	B/A
D.	Projected yearly totals Table 5.1 p.30
E.	"
F.	"
G.	B+D+E+F
H.	88-89 health aides salary/hour * hours worked
I.	Projected yearly total from collected data - see p. 30
J.	I * health aide salary including benefits
K.	H-J
L.	K/G

Appendix D

Table D

EXPLANATION OF ELEMENTARY PART-TIME HEALTH AIDE COSTS

(Table 5.4 - 5.8 pp. 34 - 38)

All JHS and HS data is the same as for full-time health aide costs - see p. 32.

Item

A -G Same as for full-time health aides

H. Salary (no benefits)/hour * hours/day * days/year * 4 schools

I. Projected yearly total from collected data - see p. 30

J. I * clerk salary/hour

K. D * # meds given in non-health aide portion of day * time/med (0.025 hour * clerk salary/hour For # of meds see p. 30.

L. Add: cost 2 clerks/ elementary building trained in First Aid
R.N. hours - train volunteers in First Aid
- supervise chairman 1 hour/week
- phone consultation with volunteers additional 1 hour per week
- train 8 elementary clerks

M. Units of service during volunteer portion of day * 20% absence rate (see p. 28)

N. M * cost per unit service by health aides (TABLE 5.3 p. 32)

O. ELEM = H+J+K+L+N
JHS, HS = H-J

P. O/G

Appendix E

Table E

EXPLANATION OF ELEMENTARY VOLUNTEER COSTS

(Table 5.9 p. 40)

Item

A - G Same as for other alternatives

H. None

I. Same as for part-time health aides p. 59

J. "

K. "

L. D * Time/med 0.025 hour * clerk salary/hour

M. Same as for part-time health aides p. 59

N. G * 20 % absence rate (see p. 28).

O. N * cost per unit service by health aides (Table 5.3 p. 32)

P. ELEM = K+L+M+O
JHS, HS = K

Q. P/G

Table F

Table F

EXPLANATION OF TOTAL PEOPLE

WORKING IN THE ELEMENTARY HEALTH ROOMS

UNDER VARIOUS ALTERNATIVES

Alternative	Health Aide	Volunteer Clerk	Vol.	Total
1	1	-	-	1
2	1	10	1	1	13
3	1	5	1	1	8
4	1	10	1	1	13
5	1	5	1	1	8
6	1	10	1	1	13
7	-	10	1	1	12